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Latest results from the MINOS experiment

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The MINOS experiment utilizes the NuMI neutrino beam to study the phenomenon of neutrino oscillations. Neutrinos are sent over a baseline of 735 km, with a detector near the production point at Fermilab and one at the Soudan underground laboratory in northern Minnesota. By observing the neutrino disappearance characteristic of oscillations, MINOS can measure the oscillation parameters. MINOS has previously made the best measurement of the atmospheric-regime mass splitting to date. I will present new results, released this summer, in which the dataset is doubled. Further analysis improvements, and the inclusion of additional event samples, further improve the sensitivity to the oscillation parameters. The corresponding antineutrino oscillation parameters are much less precisely known. From September 2009 to March 2010, MINOS has taken data with a dedicated antineutrino beam, allowing the first direct precision measurement of the antineutrino oscillation parameters in the atmospheric regime. I will present the results of this measurement, which is an important test of CPT invariance in the neutrino sector.

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